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10/583,052	06/14/2006	Peter Dytrych	NL03 1445 US1	8831

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EXAMINER

FAHERTY, COREY S

ART UNIT	PAPER NUMBER
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2183

NOTIFICATION DATE	DELIVERY MODE
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04/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/583,052	Applicant(s) DYTRYCH, PETER	
	Examiner Corey S. Faherty	Art Unit 2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/14/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the reply filed on 02/15/2008.
2. Claims 1-10 and 12-13 are pending in the application and have been examined.

Election/Restrictions

3. Applicant's election without traverse of the invention of claims 1-10 and 12-13 in the reply filed on 02/15/2008 is acknowledged.

Claim Objections

4. Claim 7 should recite "said first and at least second instruction words".

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-10 and 13 are rejected under 35 U.S.C. 101 because they are directed to non-statutory subject matter. There is evidence in the specification [page 10, lines 3-16] that claims include a software-only embodiment. Because computer software is an abstract idea, it does not fall into a statutory category of invention, and the claims therefore fail to meet the requirements of 35 U.S.C. 101. To overcome this rejection, an explicit reference to a hardware structure should be added to the claims.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 10 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (EP 1 046 983).

9. Regarding claims 1 and 12, Suzuki discloses a parallel processing apparatus for processing data based on an instruction word comprising at least two individual instructions used for controlling at least two respective functional units [page 6, paragraph 0039; a processor contains at least two processing units, each of which processes an instruction of a very long instruction word], said apparatus comprising instruction processing means for processing a first individual instruction extracted from a first instruction word, and at least a second individual instruction extracted from at least a subsequent second instruction word, as a new single instruction word [pages 6-7; paragraphs 0043-0048; instructions are compressed by combining individual instructions from multiple instruction words].

10. Regarding claim 2, Suzuki discloses an apparatus according to claim 1, wherein said instruction processing means is arranged to extract said first and at least second individual instructions if said first and at least second instruction words each comprise one of predetermined instruction patterns with at least one delay instruction, and to compress said first and at least second instruction words into said single instruction word [pages 6-7; paragraphs 0043-0048; instructions are compressed when nops exist].

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11. Regarding claim 3, Suzuki discloses an apparatus according to claim 2, wherein said delay instruction is a null operation [pages 6-7; paragraphs 0043-0048; instructions are compressed when nops exist].
12. Regarding claim 4, Suzuki discloses an apparatus according to claim 2, wherein said single instruction word is stored in a program memory [page 8, paragraph 0061; the compressed instruction is stored in a memory].
13. Regarding claim 10, Suzuki discloses an apparatus according to claim 1, wherein said parallel processing apparatus is a VLIW processor [title].
14. Regarding claim 13, Suzuki discloses a computer program product comprising code means for controlling a computer system so as to perform the steps of a compression method according to claim 12 when loaded into said computer system [page 8, paragraph 0061].

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki as applied to claim 1 above, and further in view of Faraboschi et al. (U.S. Patent 5,930,508), referenced from here forward as Faraboschi.

18. Regarding claim 5, Suzuki does not explicitly disclose that the processing means is arranged to add a predetermined control information to said single instruction word, said control information indicating at least one of an allocation of said extracted first and at least second individual instructions to said respective functional units and a sequential order of said first and least second individual instructions at their respective functional units.

However, Faraboschi discloses an instruction compression technique similar to that of Suzuki in which nops are removed from the original instruction words and the remaining instructions are combined [col. 2, line 66 – col. 3, line 15]. In the system of Faraboschi, the processing means is arranged to add a predetermined control information to the compressed instruction word [col. 4, line 57 – col. 5, line 35], said control information indicating at least one of an allocation of said extracted first and at least second individual instructions to said respective functional units [col. 4, lines 65-66] and a sequential order of said first and least second individual instructions at their respective functional units [col. 5, lines 12-35].

It would have been obvious to use the compression techniques of Faraboschi in the compression system of Suzuki because doing so allows for more efficient execution of the compressed instruction.

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19. Regarding claim 6, Suzuki in view of Faraboschi discloses an apparatus according to claim 5, wherein said control information consists of at least one bit added as at least one respective most significant bit to said single instruction word [Faraboschi, col. 5, lines 13-35].

20. Regarding claim 7, Suzuki in view of Faraboschi discloses an apparatus according to claim 5, wherein said instruction processing means is arranged to check said control information in an instruction word read from a program memory to re-establish said first and at least instruction words based on said control information, and to supply said re-established first and at least second instruction words to an instruction decoder [Faraboschi, col. 5, lines 13-18].

21. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki as applied to claim 1 above, and further in view of Iwata et al. (U.S. Patent 6,275,921), referenced from here forward as Iwata, and Topham (U.S. Patent Application Publication 2001/0047466).

22. Regarding claim 8, Suzuki does not explicitly disclose that all instruction words associated with delay slots and branch targets are marked, wherein extraction of instruction words is based on the markings. However, Suzuki analyzes all instruction types to determine which will be extracted and therefore, in a system having delay slots and branch instructions, it would be obvious to mark those specific types of instructions in order to analyze them for potential extraction. Furthermore, as is well-known in the art, as well as being taught by Iwata [col. 19, lines 15-63] and Topham [page 6, paragraphs 0075-0077], delay slot instructions and target instructions must be executed with their specific basic block and therefore care must be taken when compressing such instructions with other instructions. It therefore would have been obvious to a person having skill in the art to mark these types of instructions and base any compression or extraction of instructions on those markings.

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23. Regarding claim 9, Suzuki in view of Iwata and Topham discloses an apparatus according to claim 8, wherein said instruction processing means is arranged to adjust at least one program memory address based on a decided extraction [Topham, page 1, paragraph 0011].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey S. Faherty whose telephone number is (571) 270-1319. The examiner can normally be reached on Monday-Thursday and every other Friday, 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eddie P Chan/
Supervisory Patent Examiner, Art Unit 2183

Corey S Faherty
Examiner
Art Unit 2183

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